REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

A proposed change to Fig. 1 is submitted herewith to overcome the objection thereto.

A new Abstract is submitted herewith as required by the Office Action.

The specification has been amended to include section headings as requested in the Office Action.

No new matter is believed to be introduced by the amendments to the drawing and the specification.

Claims 1-13 have been cancelled in favor of new claims 14-19, which better define the subject matter Applicant regards as the invention. Support for the subject matter recited by the amended claims is provided in the original claims and the specification on page 7, line 34, through page 8, line 11. New claims 14-19 have been drafted to avoid the issue underlying the rejection of claim 13 under 35 USC §112, second paragraph.

Claims 1-5 and 7-13 were rejected, under 35 USC §103(a), as being unpatentable over DeVlieg et al. (US 5,968,106) in view of Sekine et al. (US 6,067,497) and Coquin et al. (US 5,668,541). Claim 6 was rejected, under 35 USC §103(a), as being unpatentable over DeVlieg in view of Sekine and Coquin and further in view of

Kawamoto (US 6,254,202). To the extent the rejections are deemed applicable to new claims 14-19, Applicant respectfully traverses.

New claim 14 recites:

> *A process for aiding the driving of an aircraft running over the ground in an acceleration phase with a view to takeoff, wherein the following successive operations are carried out repetitively:*
>
> *a) a current speed v0 of the aircraft and a value acc corresponding to a deceleration of said aircraft are determined, wherein said value acc is a predetermined deceleration value which corresponds to the deceleration undergone by the aircraft during emergency braking;*
>
> *b) with the aid of the values v0 and acc, a distance df to be traveled on the ground by the aircraft in order to stop is calculated using the following expression:*
>
> $df = (v0)^2/2acc$
>
> *and a stopping position of the aircraft is moreover calculated from said distance df and a current position of said aircraft; and*
>
> *c) the distance df and the stopping position are presented to a driver of the aircraft with the aid of an appropriate means.*

The combined teachings of the applied references fail to suggest the feature recited in claim 14 of presenting to a driver of an aircraft, during takeoff, a calculated emergency stopping distance and stopping position of the aircraft.

By contrast to the claimed features, DeVlieg discloses an aircraft automatic braking system having a stop-position input for selecting a desired aircraft stopping position on a runway (DeVlieg col. 1, lines 39-41). An aircraft positioning system is

provided for determining the aircraft's present position (col. 1, lines 41-43). Control logic compares the aircraft's actual position with the selected stopping position and, in response thereto, predeterminedly decelerates the aircraft such that the aircraft tends to stop at the selected position (col. 1, lines 43-46).

As may be determined from the above passage, and DeVlieg's disclosure as a whole, once the pilot selects the desired stopping position and enters the current weather-related runway conditions (see DeVlieg col. 4, lines 35-40), the automatic braking system takes complete control of braking the aircraft. The pilot is out of the loop with respect to braking the aircraft, and, therefore, has no need for the presentation of information concerning a calculated stopping distance and stopping position of the aircraft.

The subject matter of claim 14 differs from DeVlieg's disclosure in that: (1) the claimed process is applied during takeoff of an aircraft rather than during landing and (2) the pilot is presented with emergency stopping distance and position information for use in making an informed decision whether to abort the takeoff and bring the aircraft to a safe stop. DeVlieg's system is applied to the landing of an aircraft, when the pilot has ample time to input the desired stopping position

and current runway conditions. The ability to properly program DeVlieg's system during an emergency abortion of takeoff is highly suspect, given the amount of programming required, the urgency of the situation, and the criticality of having the pilot control the aircraft. Moreover, with DeVlieg's system, the automatic braking system controls the aircraft braking once initiated. The invention defined by claim 14 does not control the braking but, instead, presents information required by the pilot to determine whether a takeoff may be aborted safely so the pilot may act accordingly.

Furthermore, DeVlieg's system provides variably actuated braking (i.e., deceleration) for the purpose of bringing an aircraft to a stop at a selected position on the runway. By contrast to this feature, the process defined by claim 14 presents to the pilot an emergency stopping distance and location, calculated from a predetermined amount of deceleration, that vary during the takeoff in relation to the current speed and position of the aircraft. DeVlieg's stopping position and distance are fixed and, therefore, do not vary with the speed and location of the aircraft. Additionally, DeVlieg does not brake the aircraft to achieve a predetermined deceleration but, instead, applies the braking variably to bring the aircraft to a stop at the selected location (see DeVlieg col. 1, lines 55-60).

The Office Action acknowledges that DeVlieg does not teach presenting distance information to a driver of a vehicle (Office Action page 7, lines 5-7). To overcome this deficiency, the Office Action proposes that: (1) Sekine teaches a formula for determining the distance a vehicle travels until it reaches a speed vk and (2) Coquin teaches a display device capable of displaying stopping information (page 7, lines 7-9).

More specifically, the Office Action proposes that a skilled artisan would be motivated to combine the teachings of Sekine and Coquin to provide a display of the distance a user will travel based on his current speed and deceleration (Office Action page 5, lines 11-15). However, as discussed above, DeVlieg teaches applying a variable deceleration to bring an aircraft to a stop at a fixed location through a fixed stopping distance. Neither the stopping distance nor the stopping location vary in relation to the current speed and deceleration of the aircraft with DeVlieg's system. Therefore, the motivation proposed in the Office Action is inconsistent with the facts underpinning it. And even assuming, *arguendo*, that the teachings of Sekine and Coquin would suggest displaying the distance the aircraft will travel, the displayed information would be a fixed value. The motivation to display a fixed distance value does not provide a motivation to modify DeVlieg's system to present an emergency

stopping location and distance that are determined from a current speed and location of the aircraft.

The Office Action appears to recognize this shortcoming of the rejection by further proposing that it would have been obvious to a skilled artisan with respect to DeVlieg's system to display desired information made available by a calculation (Office Action page 5, lines 9-11). However, as discussed above, DeVlieg's system operates completely autonomously, once initiated, and the pilot is relieved of braking the aircraft. DeVlieg provides no suggestion that the stopping distance or position is desired by the flight crew or even what benefit such information could provide the crew in relation to the operation of the automatic braking system. Instead, DeVlieg expressly discloses that a message indicating whether the stop-to-position autobrake mode has been selected is displayed to the flight crew (DeVlieg col. 4, lines 57-63). This message is not only the seemingly most relevant information for use with the automatic braking system but is also the only information that DeVlieg suggests is desired for display to the flight crew. Therefore, the Office Action's implication that DeVlieg suggests the desirability of presenting the stopping distance and position to a pilot is unsupported by the evidence.

Kawamoto is cited only for teaching a predetermined deceleration value (Office Action page 6, last three lines). This proposed teaching does not supplement those of DeVlieg, Sekine, and Coquin with regard to the absence of motivation to combine their respective teachings in a way that would render the claimed subject matter obvious.

In accordance with the above discussion, Applicant submits that the combined teachings of the applied references do not suggest the subject matter defined by claim 14. Specifically, the applied references do not suggest the claimed feature of presenting to a driver of an aircraft, during takeoff, a calculated emergency stopping distance and stopping position of the aircraft. Therefore, allowance of claim 14 is warranted.

Independent claims 15 and 19 similarly recite the features distinguishing method claim 14 from the applied references, though claims 15 and 19 do so with respect to apparatus claims. For the same reasons these features distinguish claim 14 from the applied references, so too do they distinguish claims 15 and 19. Therefore, allowance of claims 15 and 19 and all claims dependent therefrom is warranted.

To provide a better understanding of the differences between the claimed subject matter and the applied art, Applicant submits the following points.

Claim 14 concerns an embodiment of the invention described in particular on page 7, line 34, to page 8, line 11. It relates to the driving of an airplane (or aircraft) in an acceleration phase with a view to takeoff. With this embodiment, the pilot is continuously informed during the acceleration phase of the takeoff of the distance required for the aircraft to stop. This mode of operation allows the pilot to ascertain up to what moment he can interrupt the takeoff without any risk of overshooting the end of the runway during subsequent braking.

Applicant submits that the applied references do not suggest the subject matter of claim 14 because:

- none of these documents relates to an acceleration phase of a takeoff;

- none of these documents relates to the braking of the aircraft during an acceleration phase;

- none of the documents discloses presenting a stopping position of an aircraft during an acceleration phase;

- it is not obvious to one skilled in the art to take into account a deceleration value during an acceleration phase;

- it is not obvious to take into account the deceleration undergone by the airplane during emergency braking. Kawamoto does not disclose this feature and does not disclose setting a predetermined deceleration. Instead, Kawamoto simply discloses a

deceleration exceeding 0.6 G (column 4, lines 32-33), but does not indicate a deceleration value;

- it is not obvious to one skilled in the art to apply Sekine and Kawamoto, which relate to a vehicle, to claim 14 which is applied to an aircraft.

Regarding independent claim 15, Applicant submits that the applied references do not suggest the subject matter of this claim because:

- it is not obvious to one skilled in the art to apply Sekine and Kawamoto (which relate to a vehicle) to claim 15, which is applied to an aircraft;

- it is not obvious to one skilled in the art to display a symbol (on a head-up display) which corresponds, in the field of vision of the pilot, to the stopping position of the aircraft on the running track.

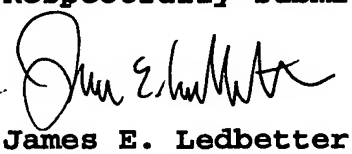
Regarding claim 19, this claim includes the features of claim 15 and is patentable for the reasons identified in connection with claim 15.

Accordingly, allowance of claims 14, 15, and 19 and all claims dependent therefrom is warranted for these independent reasons.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



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IN THE DRAWINGS

A Proposed change to Fig. 1 is submitted herewith, with a Letter to the Official Draftsman.